

REMARKS

Claims 1, 10, 11, 21 and 24-40 stand rejected under 35 USC 103(a) on Fukunaga (U.S. Patent Publication No. 2002/0044584) in view of Yoshida (U.S. Patent Publication No. 2002/0041613). Applicants respectfully traverse this rejection.

Claim 1 recites “a quantum well active layer deposited on the lower guide layer; [and] an upper guide layer deposited on the quantum well active layer ... wherein the upper guide layer ... [is] made of an AlGaAs based material.” Neither Fukunaga nor Yoshida, alone or in combination, discloses or suggests such features.

The Examiner asserts that Fukunaga discloses an upper guide layer 63 deposited on a quantum well active layer 55 (including barrier layers 54 and 56), citing paragraph [0058] and Fig. 3 of Fukunaga. Applicants respectfully disagree. As shown in Fig. 3 and disclosed in paragraph [0058], cited by the Examiner, upper guide layer 63 is not deposited on the quantum well active layer 54/55/56. The upper optical waveguide layer 63 of Fukunaga is deposited in part on p-type InGaP first etching stop layer 58, and in other parts on InGaAsP second etching stop layer 59 and InGaP current confinement layer 60. The guide layer 63 is not deposited on the quantum well active layer 54/55/56 as recited in claim 1.

Similarly, Yoshida (Fig. 1a, paragraph [0029]) discloses “sandwiching” a quantum well active layer 4 between optical confinement layers 3a and 3b. Accordingly, neither Fukunaga nor Yoshida discloses depositing a quantum well active layer directly on a clad layer or depositing a clad layer directly on a quantum well active layer as recited in claim 1. Claim 1 is therefore allowable.

Independent claims 11, 21, 24, 25 and 27 recite features substantially similar to those of claim 1 detailed above, and are therefore allowable for at least the same reasons as claim 1. Claims 10, 26 and 28-40 depend from allowable claims and are allowable due at least to their respective dependencies.


Additionally, neither Fukunaga nor Yoshida, alone or in combination, discloses or suggest the features recited in claims 31 and/or 32. Specifically, the cited references fails to disclose a quantum well active layer and an upper guide layer located next to each other wherein the upper guide layer is doped with an impurity of the second conductivity type, as recited in claim 31. The cited references also fail to disclose a quantum well active layer and an lower guide layer located next to each other wherein the lower guide layer is doped with an impurity of the first conductivity type, as recited in claim 32.

Applicants solicit an early Action allowing the claims.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief, including extensions of time, and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing Docket No. **204552030500**.

Dated: May 7, 2008

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